What is claimed is:

1. In a network having a plurality of computer systems each including a processor, a memory and a network adapter, the memory containing a data structure used for storing a common data buffer, a method for the sending and receiving of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

under control of a sending computer system,

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and adjusting the start pointer to point to a memory location within the common data buffer of a first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of a next lower protocol layer and transferring by an address reference the slice of data to be sent by the next lower protocol layer; and

under control of a receiving computer system,

invoking a receive method of a next lower protocol layer;

processing and removing any header added to a received slice of data from the send procedure of the same protocol layer level on the sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of the header to point to a first memory location within the common data buffer following the header; and

exiting and returning by an address reference to a receive procedure of a next higher protocol layer the received slice of data.

2. In a computer system including a processor, a memory and a network adapter, the memory containing a data structure used for storing a common data buffer, a method for the sending of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and adjusting the start pointer to point to a memory location within the common data buffer of a

first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of the next lower protocol layer and transferring by an address reference the slice of data to be sent by the next lower protocol layer.

3. The method for sending application data of claims 1 or 2 wherein a checksum is added to the header in the common data buffer preceding the slice of data being sent.

4. The method for sending application data of claims 1 or 2 wherein the transferring step includes any application data or information required by the send procedure of the next lower protocol layer.

5. The method for sending application data of claims 1 or 2 further comprising the step of adjusting a size of the slice of data to be sent by the next lower protocol layer by adjusting the end pointer.

6. In a computer system including a processor, a memory and a network adapter, the memory containing a data structure used for storing a common data buffer, a method for the receiving of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

invoking a receive procedure of a next lower protocol layer;

processing and removing any header added to the received slice of data by a send procedure of the same protocol layer level on a sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of such header to point to a first memory location within the common data buffer following the header; and

exiting and returning by an address reference to a receive procedure of a next higher protocol layer the received slice of data.

7. The method for receiving application data of claims 1 or 6 wherein a checksum following the header and added by the sending computer system is removed from the received slice of data in the common data buffer.

8. The method for receiving application data of claim 7 wherein the checksum is removed by adjusting the start pointer of the data buffer to point to the memory location following the checksum.

9. The method for receiving application data of claims 1 or 6 further comprising the step of transferring any application data or information required by the receive procedure of the next higher protocol layer.

10. A computer system for the sending and receiving of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

a processor for processing data from an application program;

a data structure in memory including a common data buffer used for the storing of application data being sent and received;

a component that sends application data stored in said data structure by,

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and adjusting the start pointer to point to a memory location within the common data buffer of a first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of a next lower protocol layer and transferring by an address reference the slice of data to be sent by the next lower protocol layer; and

a component that receives application data stored in said data structure by,

invoking a receive procedure of a next lower protocol layer;

processing and removing any header added to a received slice of data by a send procedure of the same protocol layer level on a sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of the header to point to a first memory location within the common data buffer following the header; and

exiting and returning to the receive procedure of a next higher protocol layer the received slice of data.

11. A computer system for the sending of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

a processor that processes data from an application program;

a data structure in memory including a common data buffer used for storing of the application data being sent and received;

a component that sends data stored in said data structure by,

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and adjusting the start pointer to point to a memory location within the common data buffer of a

first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of a next lower protocol layer and transferring by an address reference the slice of data to be sent by the next lower protocol layer.

12. The computer system for sending application data of claims 10 or 11 wherein the component that sends application data adds a checksum to the header in the common data buffer preceding the slice of data being sent.

13. The computer system for sending application data of claims 10 or 11 wherein the component that sends application data transfers any application data or information required by the send procedure of the next lower protocol layer.

14. The computer system for sending application data of claims 10 or 11 wherein the component that sends application data adjusts a size of data to be sent by the next lower protocol layer by adjusting the end pointer.

15. A computer system for the receiving of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, comprising:

a processor that processes data from an application program;

a data structure in memory including a common data buffer used for storing of the application data being sent and received;

a component that receives data stored in said data structure by,

invoking a receive procedure of a next lower protocol layer;

processing and removing any header added to a received slice of data by a send procedure of the same protocol layer level on a sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of the header to point to a first memory location within the common data buffer following the header; and

exiting and returning to a receive procedure of a next higher protocol layer the received slice of data.

16. The computer system for receiving of application program data of claims 10 or 15 wherein the component that receives application data removes a checksum added by the sending computer system from the received slice of data in the common data buffer.

17. The computer system for receiving of application program data of claim 16 wherein the component that receives application data removes the checksum by adjusting the start pointer of the data buffer to point to the memory location following the checksum.

18.The computer system for receiving of application program data of claims 10 or 15 wherein the component that receives application data transfers any application data or information required by the receive procedure of the next higher protocol layer.

19. A computer readable medium containing a computer program for the sending and receiving of application program data by layers or sub-layers of at least one communications protocol without recopying of the application program data, said computer program comprising:

computer program instructions that generate a data structure in a memory including a common data buffer used for storing of the application data being sent and received;

computer program instructions that send data stored in said data structure by,

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and then adjusting the start pointer to point to a memory location within the common data buffer of a first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of a next lower protocol layer by transferring by an address reference the slice of data to be sent by the next lower protocol layer.

computer program instructions that receive data stored in said data structure by,

invoking a receive procedure of a next lower protocol layer;

processing and removing any header added to a received slice of data by a send procedure of the same protocol layer level on a sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of the header to point to a first memory location within the common data buffer following the header; and

exiting and returning to a receive procedure of a next higher protocol layer the received slice of data.

20. A computer readable medium containing a computer program for the sending of application program data by layers or sub-layers of at least one communications protocol without recopying the application program data, said computer program comprising:

computer program instructions that generate a data structure in memory including a common data buffer used for storing of the data being sent;

computer program instructions that send data stored in said data structure by,

storing in a plurality of pointers to locations within the common data buffer, a start and an end location of a next slice of data being sent;

adding an appropriate header to the slice of data being sent by placing the header in the common data buffer immediately preceding the location within the common data buffer pointed to by the start pointer and adjusting the start pointer to point to a memory location within the common data buffer of a

first byte of the header added to the data contained in the common data buffer; and

invoking a send procedure of a next lower protocol layer and transferring by an address reference the slice of data to be sent by the next lower protocol layer.

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21. The computer readable program for sending application program data of claim 19 or 20 wherein the computer instructions that send data adds a checksum to the header in the common data buffer preceding the slice of data being sent.

22. The computer readable program for sending application program data of claim 19 or 20 wherein the computer instructions that send data transfer any application data or information required by the send procedure of the next lower protocol layer.

23. The computer readable program for sending application program data of claim 19 or 20 wherein the computer instructions that send data adjust a size of data to be sent by the next lower protocol by adjusting the end pointer.

24. A computer readable medium containing a computer program for the receiving of application data by layers or sub-layers of at least one communications protocol without recopying of the application program data, said computer program comprising:

computer program instructions that generate a data structure in memory including a common data buffer used for storing of the data being received;

computer program instructions that receive data stored in said data structure by,

invoking a receive procedure of a next lower protocol layer;

processing and removing any header added to a received slice of data by a send procedure of the same protocol layer level on a sending computer system by adjusting a start pointer initially pointing to a memory location within the common data buffer of a first byte of the header to point to a first memory location within the common data buffer following the header; and

exiting and returning to a receive procedure of a next higher protocol layer the received slice of data.

25. The computer program product for receiving application program data of claims 20 or 24 wherein the program instructions that receive data remove a checksum added by the sending computer system from the received slice of data in the common data buffer.

26. The computer program product for receiving application program data of claim 25 wherein the program instructions remove the checksum by adjusting the start pointer of the data buffer to point to the memory location following the checksum.

27. The computer program product for receiving application program data of claims 20 or 24 wherein the program instructions that receive data transfer any application data or information required by the receive procedure of the next higher protocol layer.

28. A computer readable medium containing a data structure stored in a memory of a computer system for access by an application program being executed on said computer system for the purpose of sending and receiving application data by layers or sub-layers of at least one communications protocol without recopying of application program data, said data structure comprising:

a common data buffer containing the application data being sent or received and including free space preceding the application data; and

a plurality of pointers that point to the locations in the common data buffer of a start and an end of the data being sent or received.